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OEPA COMMENTS ON FEMP BACKGROUND SAMPLING PLAN

12/03/91

OEPA/DOE-FO
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LETTER

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George V. Voinovich
Governor

December 3, 1991

Mr. Jack R. Craig
Project Manager
U.S. DOE FEMP
P.O. Box 398705
Cincinnati, Ohio 45239

Dear Mr. Craig:

Listed below are Ohio EPA's comments on the FEMP Background Sampling Plan. This plan will eventually be utilized for CERCLA and RCRA actions at the site.

General Comments

1. Background concentrations of radiological and HSL parameters must be established for all media, including soils. DOE should refer to Ohio EPA, Division of Emergency and Remedial Response's "How Clean is Clean Policy," July 26, 1991, which contains a Background Sampling Guidance section.

2. To avoid schedule delays, DOE should determine if there are any property access issues for primary and alternate background sampling locations as soon as the locations are approved by U.S. EPA and Ohio EPA.

3. The plan should contain a schedule for implementation of background sampling activities.

Specific Comments

1. Section 1, Page 3, Table 1: In the draft Risk Assessment Work Plan (10/15/91), Table 4-2 lists radionuclides and hazardous chemicals in environmental media or operable unit source terms. Additional analytical parameters that should be included in the Background Sampling Plan are as follows: Actinium-227, Neptunium-237, Protactinium-231, Plutonium-238, Plutonium-239/240, Radium-220, Radium-224, and Sodium.

2. Section 2.1, Page 4: The plan should describe how historical information was used to identify potential background sampling locations.

3. Section 2.1.1, Page 5: Several questions arise from use of construction data from 1951: a) How was the 1951 data collected? b) What information from the 1951 data will be compared to off-site data? Is this information suitable for comparison purposes? c) What criteria will be used to be able to state that an on-site area is comparable to an off-site area? These criteria should also be stated in detail in Section 2.2 (see paragraph 4, page 6).

4. Section 2.1.2, Page 5: Provide a soil survey map for the FEMP Site. The area of the map must include the "Site" as defined in the Amended Consent Agreement. Provide a description of the soil types in the text.

5. Section 2.1.2, Page 5: On-site soils may have been considerably disturbed, removed, and/or covered with other materials during construction and use of the site. Soil types may not correspond to USDA/SCS Soil Survey data. Describe how background comparisons will be determined for these areas.

6. Section 2.2 Selection of Background Sample Locations: The Ohio EPA Background Sampling Guidance is only guidance. The initial number of samples needed to adequately assess background concentrations stated in Ohio EPA guidance is seven. This number was calculated using well known statistical formulas. If DOE does not agree with the number of samples needed then they can select a different value for the number of background samples needed to be analyzed. However, the number chosen must be statistically defensible for determining background concentrations.

7. Section 2.2, Page 6, First Paragraph: Provide a legible background sample location map including a scale, legend, and north arrow (Attachment 6). Provide legible copies of Attachments 7a and 7b.

8. Section 2.2, Page 6, First Paragraph: Background samples must be collected for each soil type (not just the major soil classification) found at the FEMP Site. Sample

locations 1, 4, and 6 appear to be located very close to roads. Sample location 2 appears to be located very close to the Whitewater River, and locations 3 and 6 appear to be near the river. Explain the rationale for selecting these locations and explain the effect of roads and the river on these locations.

9. Section 2.2, Page 6: The plan should specify the criteria for determining similarity between FEMP and background soils. What physical properties will be used? What procedures will be used to assess these properties in the field? The ranges of these properties should be listed for each FEMP soil type.

10. Section 2.2, Page 7, Paragraph 2: Personal interview with the farmers will not guarantee that the soil sampling locations have not been exposed to high levels of herbicides and pesticides. As a result, the soil samples should be analyzed for these parameters to ensure true representative background samples.

11. Section 2.2, Page 7, Paragraph 1: Property owners should be asked about fertilizer application on their properties. This section should also address how historical uses of the property will be determined.

12. Section 2.2, Page 2, Paragraph 2: Explain the rationale for collecting four samples at each location. The Background Sampling Guidance referenced in General Comment #1 contains a section on selecting the appropriate number of background samples. The guidance states (page 14) that the number of samples proposed for collection for initial background sampling is seven.

13. Section 2.2, Page 9, Paragraph 3: It is unclear to Ohio EPA why only the 0-6 inch sample will be analyzed for radionuclides. This zone is most susceptible to fugitive aeolean deposits from the facility. If the purpose of the sampling is to find the background concentrations of radionuclides in the soils of the Fernald area, then all three proposed sampling depths should be analyzed.

14. Section 3, Page 8: The plan should state that the site-wide QAPP will be followed if it is approved at the time of implementation of background sampling. Alternatively, the RI/FS QAPP, Revision 3 will be used, incorporating U.S EPA and Ohio EPA comments.

15. Section 3.2, Page 9, Paragraph 3: All samples should be analyzed for radionuclides. The background sampling plan must determine background concentrations of radionuclides for all soil types, not just the top six inches at a location.

16. Section 3.2, Page 9: To increase comparability, the same sample intervals within each lithologic zone should be collected from each of the four borings at any one site.

17. Section 3.3, Page 10: In step 6, there is no mention of a homogenization step before soil sample containers are filled. Homogenization is necessary to obtain a representative sample from the sample interval. Additionally, it creates a more representative sample for duplicate analyses.

18. Section 3.5.2, Page 14: The decontamination procedures described are not sufficient for decontamination of equipment used to collect background samples for radionuclides and inorganics. Use the Level III decontamination procedure described in the draft site-wide QAPP, Appendix J.4.7.2. Do not use aluminum foil to cover decontaminated equipment.

19. Section 3.5.2, Decontamination Procedures: An acid rinse must be used in the decontamination of sampling equipment. Please refer to the Technical Enforcement Guidance Document (TEGD, Sept. 1986) for specific decontamination procedures and rewrite this section to reflect this change.

20. Section 5.1, Page 19: Collect one rinseate sample for every 10 samples that are collected. (This issue was previously addressed as an Ohio EPA comment [August 5, 1991 letter] on the RI/FS QAPP, Revision 3.).

21. Section 5.1, Page 20: Is a Preservation Blank necessary? The only samples receiving preservative are the QC samples.

22. Section 5.1, Page 21: Is the Material Blank the detergent or deionized water? Doesn't the Rinsate Sample address this QC issue.

23. Section 5.2, Page 22, Paragraph 1: The laboratory used for analysis of background samples must be approved by U.S. EPA for conducting analyses for the RI/FS.

24. Section 5.2, Page 23: Sample temperature (at the time of sample log in at the laboratory) should be added to the list of information to be recorded for Chain-of-Custody records.

25. Section 6.2.3, Page 27: This section is too general. Specific details must be discussed, including determining normality of data (especially with such a small data set), transforming data that is not normal, and data analysis to determine anomalies. Data should not be statistically compared between different soil types or different lithologies (see paragraph 2).

26. Attachment 6: DOE does not state the location of the soil samples in relation to the prevailing wind direction and the facility. The background samples must be located up-wind of the facility.

If you have any questions about these comments, please feel free to contact me.

Sincerely,

Graham E. Mitchell
Project Manager

GEM/acn

cc: Section Manager, DERR, T&PSS, OEPA
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